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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/804,925

03/19/2004

Owen S. Taylor

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EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1745

MAIL DATE

DELIVERY MODE

07/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/804,925

Applicant(s)

TAYLOR ET AL.

Examiner

Robert Hodge

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/19/04 & 9/29/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 18-30 in the reply filed on 5/1/8/07 is acknowledged.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 3/19/04 & 9/29/05 have been considered by the Examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19, 21, 25 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19 and 28 recite the limitation "said plurality of fuel cells" in the last line of each claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 recites the limitation "the curvature" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 25 recites the limitation "said input leg" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-20, 22-25, 28 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 4,728,584 hereinafter Isenberg.

Isenberg teaches a solid oxide fuel cell comprising a plurality of elongated fuel cell tubes having fuel 49 and oxidant 47 electrodes separated by an electrolyte 45, with fuel 90 and oxidant 20 feed tubes, wherein the tubes are electrically connected with elongated conductive strips 54, wherein each electrode has an electrical connection thereto, wherein the fuel tube has an inlet leg (i.e. the inlet of the tube) and an outlet leg (i.e. the outlet of the tube) that form a flow path and the fuel tube is supported by a support fin 31 and at least the interior 93 of the fuel tube is coated with a reforming catalyst (column 11, lines 3-11), wherein the support structure houses at least an exhaust distribution box 27 and 28, air distribution box 18, a fuel box 17, cell spacers 31 and 32, a cell and fuel feed spacer attached to the fuel cells 33, an air tube spacer plate 34 and chamber supports 22 (see figures 1-6 and column 9, line 1 – column 11, line 17).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 21, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenberg in view of U.S. Patent No. 4,827,606 hereinafter Szreders.

Isenberg as discussed above is incorporated herein.

Isenberg does not teach that the electrical contact members between the cells are curved to couple the curvature of the fuel cell or that the inlet and outlet legs of the fuel tube are separate sleeves nested together and separated by a support.

As seen in figure 13b Szreders teaches that the electrical contact member 36 is curved to couple the curvature of an outside surface of the solid oxide fuel cell tubes 20a and 20b. As seen in figures 4 and 6, Szreders further teaches that fuel feed tube 106 is nested inside of sleeve 100 and that the fuel feed tube 106 is separated from

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sleeve 100 by a support member 112 to form a flow path, see also column 6, line 50 – column 7, line 9.

At the time of the invention it would have been obvious to one having ordinary skill in the art to use curved electrical contact members in Isenberg as taught by Szreders in order to provide an electrical contact member that better contacts the curvature of the tube with more surface area to decrease the resistance of the electrical contact member and also allow a better adhesion to the tubes. It also would have been obvious to one having ordinary skill in the art to nest a feed tube inside of a sleeve and separate the two pieces with a support in Isenberg as taught by Szreders in order to more evenly distribute the fuel to the fuel cells so that each fuel cell receives an equal amount of fresh fuel which will in turn provide the maximum power output at the greatest efficiency.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenberg in view of U.S. Patent No 7,226,675 hereinafter Ovshinsky.

Isenberg does not teach the use of tongue and groove connectors between components.

Ovshinsky teaches that a tongue and groove design in solid oxide fuel cells allows a uniform assembly of the fuel cell system and provides an area for epoxy or another adhering substance to be placed for securing the components (column 8, line 10 and column 10, lines 26-29).

At the time of the invention it would have been obvious to one having ordinary skill in the art to include tongue and groove connections between components in the

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fuel cell system of Isenberg as taught by Ovshinsky in order to provide a uniform assembly of the fuel cell system components as well as providing an area for an adhesive to bond the components together.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RWH


JONATHAN CREPEAU
PRIMARY EXAMINER